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34610 7590 06/12/2008 KED & ASSOCIATES, LLP P.O. Box 221200 Chantilly, VA 20153-1200				
EXAMINER				
HECKERT, JASON MARK				
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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/721,247  
Filing Date: November 26, 2003  
Appellant(s): LEE, YONG JAE

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Carol Druzbeck  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 3/18/08 appealing from the Office action mailed 8/17/07.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

<b>3386454</b>	<b>Kendt</b>	<b>6-1968</b>
<b>5239285</b>	<b>Rak</b>	<b>8-1993</b>
<b>4804944</b>	<b>Golladay et al.</b>	<b>2-1989</b>

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kendt in view of Rak in view of Golladay et al.

Kendt discloses a dishwasher comprising a housing 11, a tub 12, a spray arm 24, and a water softener 30. The water softener utilizes ion exchange resins.

However, it does not include a float and sensor for sensing the concentration of salt water.

Rak discloses a water softener with such features. This water softener has at least one container 26a for holding an ion-exchange resin, one tank 10 for holding salt and saltwater, a float 48, and a liquid sensing apparatus (col. 4 line 35-36) that determines if the saltwater concentration is sufficient. The liquid sensing apparatus detects the brine concentration by determining if the float has risen to a certain height (col. 3 lines 18-32). The float 48 is mounted on shaft 52 to guide the movement of the float. Rak discloses that the preferable means for detection of the location of the float is a magnet mounted axially within the float and a magnetic proximity reed switch or a Hall-effect switch within the shaft on which the float is mounted. Depending on the embodiment, the switches are attached to the control apparatus 20 by wires (56, 82a, 82b). These wires are capable of transmitting a current.

The sensor detects whether the liquid level is sufficient, and thereby, the concentration of the brine, based on the distance between the detector and the float. If the liquid level is not high enough, and therefore, the concentration is not sufficient, an indication, in the form of an alarm, is given (col. 3 line 61-62). This satisfies the limitation of an information device. Furthermore, this indication is based on a determination of whether the quantities of solid salt and water are sufficient to indicate that an adequate salt supply is present (col. 3 line 68-69), which meets the limitation of informing on the basis of a salt shortage.

Neither Kendt nor Rak discloses a sensor that detects a distance from the float to the sensor. However, as stated previously, Rak discloses that the preferable means for detection of the location of the float is a magnet mounted axially within the float and a

magnetic proximity reed switch or a Hall-effect switch within the shaft on which the float is mounted. Many types of Hall-effect sensors are known in the art.

Golladay et al. disclose a Hall-effect liquid level sensing apparatus that comprises a float carrying a magnet and a Hall-effect sensor that detects the location of the float. The device further includes a control device that enables the device to sense the depth of the float (see abstract).

As stated previously, Kendt discloses a water softener in a dishwasher but does not disclose many features of the softener.

It would have been obvious at the time of the invention to have modified the dishwasher disclosed by Kendt, to include any water softener that was conventionally used, such as that taught by Rak with a float type salt sensor, in order to detect and alarm the user of insufficient brine concentrations. Furthermore, it would have been obvious to have modified Kendt and Rak and include a Hall-effect apparatus, as disclosed by Rak, such as one that measures a location, depth, or distance, as taught by Golladay et al. as it is a known type of Hall-effect apparatus.

Claims 12-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rak in view of Golladay et al.

Rak discloses a water softener that has at least one container 26a for holding an ion-exchange resin, one tank 10 for holding salt and saltwater, a float 48, and a liquid sensing apparatus (col. 4 line 35-36) that determines if the saltwater concentration is sufficient. The liquid sensing apparatus detects the brine concentration by determining

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if the float has risen to a certain height (col. 3 lines 18-32). The float 48 is mounted on shaft 52 to guide the movement of the float. Rak discloses that the preferable means for detection of the location of the float is a magnet mounted axially within the float and a magnetic proximity reed switch or a Hall effect switch within the shaft on which the float is mounted. Depending on the embodiment, the switches are attached to the control apparatus 20 by wires (56, 82a, 82b). These wires are capable of transmitting a current.

The sensor detects whether the liquid level is sufficient, and thereby, the concentration of the brine, based on the distance between the detector and the float. If the liquid level is not high enough, and therefore, the concentration is not sufficient, an indication, in the form of an alarm, is given (col. 3 line 61-62). This satisfies the limitation of an information device. Furthermore, this indication is based on a determination of whether the quantities of solid salt and water are sufficient to indicate that an adequate salt supply is present (col. 3 line 68-69), which meets the limitation of informing on the basis of a salt shortage.

Rak does not disclose a sensor that detects a distance from the float to the sensor. However, as stated previously, Rak discloses that the preferable means for detection of the location of the float is a magnet mounted axially within the float and a magnetic proximity reed switch or a Hall-effect switch within the shaft on which the float is mounted. Many types of Hall-effect sensors are known in the art.

Golladay et al. disclose a Hall-effect liquid level sensing apparatus that comprises a float carrying a magnet and a Hall-effect sensor that detects the location of

the float. The device further includes a control device that enables the device to sense the depth of the float (see abstract).

It would have been obvious at the time of the invention, to have modified the water softener of Rak and include a Hall-effect apparatus, as disclosed by Rak, such as one that measures a location, depth, or distance, as taught by Golladay et al. as it is a known type of Hall-effect apparatus.

#### **(10) Response to Argument**

Appellant's arguments do not appear to be commensurate in scope with the claim language. It seems as if the appellant is interpreting "based on a distance of the float from the sensor" to mean that the sensor measures a variable distance between the float and sensor. However, the examiner does not find the claim language to specifically mean that a variable distance can be measured.

Examiner maintains that it is obvious to have modified Kendt to include the water softener of Rak, which indicates whether sufficient salt is in the tank to ensure the formation of adequate brine (col. 3 lines 18-31). Rak discloses that the means for indication can include a float attached to a string which throws a switch when the float rises to a sufficient distance. At this point, a switch is thrown, thus, creating a signal. Thus, the sensor works based on a distance between the float and switch being achieved, and a signal is outputted when said distance is reached. Thus, even without the modification of Golladay et al., Rak describes an apparatus that reads on the claim language of the sensor. Granted, Rak makes no mention of measuring a variable



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distance between the sensor and the float, but such language is not present in the claims. Rak discloses that the sensing means can also comprise a Hall-effect switch.

Golladay et al.'s invention also works "based on a distance of the float from the sensor". The Hall-effect sensor senses the location of a magnet and thereby the location of the float. As the appellant argues, "the Hall-effect sensor card 29 senses the magnets 21, 25 when it is adjacent the magnets 21, 25". The sensor 29 only outputs a signal when the magnet is at a certain location, or distance, from the sensor. Examiner considers this to read on "based on a distance".

To reiterate, appellant appears to be arguing that the invention of the instant application detects a variable distance. However, the claim language broadly recites sensing concentration "based on a distance of the float from the sensor". Both Rak and Golladay et al. disclose inventions that meet the broad limitations of the independent claims.

Examiner does not find the argument that the inventions are not combinable to be persuasive. Rak clearly states that the sensing device can be mounted within a shaft (col. 3 line 31), much like that of Golladay et al.'s. Rak's device also correlates the addition of water to concentration (col. 3 lines 18-31). One skilled in the art is capable of extending the principals of sensing the location of a float to provide information on the specific gravity, which is proportional to concentration, of a fluid.

It is evident from Kendt that there is motivation to include water softeners in dishwashers. It is also evident from Rak that there is a need to monitor salt levels in water softeners with sensing devices. Rak discloses a device that operates when a

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certain distance is sensed. Golladay also discloses a device that operates based on a distance between the sensor and the float. Thus, one skilled in the art would have the motivation to combine the devices of Kendt, Rak, and Golladay and arrive at the instant invention as claimed.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Jason Heckert/

Jason Heckert

Examiner, Art Unit 1792

Conferees:

/Michael Barr/

Michael Barr

Supervisory Patent Examiner, Art Unit 1792

/Kathryn Gorgos/

Kathryn Gorgos

Appeals Specialist, TC 1700